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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/405,032	09/24/1999	WILLIAM J. BOYLE	A-378-CIP2C2	9035

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EXAMINER

DEBERRY, REGINA M

ART UNIT	PAPER NUMBER
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1647

DATE MAILED: 12/14/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/405,032

Applicant(s)

BOYLE ET AL.

Examiner

Regina M. DeBerry

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-- **Th MAILING DATE of this communication appears on the cover sheet with the correspondence address --**
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2001.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 61-68 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 61-68 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Status of Application, Amendments and/or Claims

The Declaration (Exhibit B) filed 28 September 2001 (Paper No. 8) has been entered. The amendment filed 28 September 2001 (Paper No. 9) has been entered in full.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Withdrawn Objections And/Or Rejections

The instant application fully complies with the sequence rules 37 CFR 1.821-1.825.

The objection to the specification as set forth at page 2 of the previous Office Action (Paper No. 7 28 March 2001) is *withdrawn* in view of the amendment (Paper No. 9 28 September 2001).

The rejection of claims 61-68 under 35USC 112, second paragraph as set forth at pages 6-8 of the previous Office Action (Paper No. 7 28 March 2001) is *withdrawn* in view of the amendment (Paper No. 9 28 September 2001).

Claim Rejections - 35 USC § 112, first paragraph

Claims 61-68 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to

make and/or use the invention. The basis for this rejection was set forth at pages 3-6 of the previous Office Action (Paper No. 7 28 March 2001).

Applicant's arguments (pages 5-7, Paper No. 9 28 September 2001) have been fully considered. Applicant refers to the Sheng declaration (Paper No. 8 28 September 2001). The Sheng declaration under 37 CFR 1.132 filed 28 September 2001 is insufficient to overcome the rejection of claims 61-68 based upon 35 USC 112, first paragraph as set forth in the last Office action because: the mice used in Bolon *et al.* (Exhibit C, Sheng as senior author), were true mice models for osteoporosis. As is stated in Bolon *et al.*, ovariectomy (OVX) in mice is a standard model system to evaluate bioactive molecules that may ameliorate bone loss associated with estrogen. The loss of estrogen at menopause is a major contributor to osteoporosis. This is an acceptable model for bone loss. Bolon *et al.* show that an initial defect (bone loss) existed and injecting OVX mice with osteoprotegerin cDNA cloned into an adenoviral vector increased bone density in an osteoporosis model. Bolon *et al.* have established a gene therapy model of inhibiting osteoporosis by viral delivery of osteoprotegerin gene. However, there is no support in the instant specification for the treatment described in the declaration of Sheng (recombinant adenovirus-based vector, CH2 and CH3 regions of human IgGly1, amounts of delivery of adenovirus, etc.).

Furthermore, the instant application (Example 3) demonstrates that mice offspring obtained from implantation of microinjected embryos comprising osteoprotegerin gene cloned into an ApoE-liver specific expression vector increases bone density. This is different from the method cited in the instant claims or the

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experiments of Bolon *et al.* (Sheng as senior author). The experiments from example 3 do not correlate with a subject having bone loss and a treatment that increases bone density. Applicant states that Example 11D on page 132 of the specification describes the effects of OPG on bone loss in ovariectomized rats. Applicant states that these teachings clearly point to a working method for treating bone loss by administering a nucleic acid encoding OPG and therefore provide an enabling disclosure. Contrary to Applicant's arguments, all of the experiments performed in Example 11 employed osteoprotegerin protein not osteoprotegerin DNA which are cited in the instant claims. Applicant states that "the effects of OPG, whether administered by introduction of a nucleic acid expressing OPG or an OPG protein, would clearly expected to be the same (Paper No. 9 28 September 2001 pg 6, lines 4-12). This is not true as one skilled in the art would know that gene therapy and the use of recombinant proteins for therapy are completely different. Please see Buckel (1996), Anderson (1984) and Rodan *et al.* especially pgs. 1512, 1513 growth factors section and pg 1514 gene therapy section (2000). Applicant's argument fails to overcome the rejection.

Conclusion

No claims are allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina M. DeBerry whose telephone number is (703) 305-6915. The examiner can normally be reached on Mondays-Fridays 8:00 a.m. - 4:30 p.m.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Kunz can be reached on (703) 308-4623. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7939 for regular communications and (703) 308-2742 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.



RMD

December 12, 2001



ELIZABETH KEMMERER
PRIMARY EXAMINER